act of oviposition, I think I may venture to record the species as Irish.

[*Pygæra anachoreta*, Fb.—Mr. Burchall turned out the larvæ of this moth at Howth, but apparently the attempt to plant the species has resulted in failure.]

Pygæra pigra, *Hufn.*—Very widely distributed, and abundant, but easily overlooked. Irish and Perth examples seem to be of a richer coloration than English. I have taken the larvæ and bred the imago from the following localities:—Buncrana and Cloghan near Stranorlar, Co. Donegal; shores of L. Conn, Co. Mayo; Favour Royal, Tyrone; Killynon, and Cromlyn (*Mrs. B.*), Westmeath; Mohill, Co. Leitrim; Kenmare (*Miss V.*), Co. Kerry; Newcastle (*W.*), Co. Down; near Galway, abundant (*A.*).

(To be continued.)

REMARKS ON CERTAIN GENERA OF *COCCIDÆ*.

By W. M. Maskell.

The study of Coccids is extending, and new workers are entering the field every day, so that ere long this greatly neglected family of insects will receive all the attention which it certainly merits. There exists still, on account of the careless way in which entomologists until late in this century discussed specimens which came in their way, and also of the very fragmentary and unintelligent descriptions of species given, a good deal of confusion in Coccid classification. The time has nearly, if not already, arrived when a monograph of all known Coccids, embodying a proper synopsis and sequence of genera and species, can be advantageously undertaken: and, after twenty years' study of the family, I have ventured to take some preliminary steps towards such a monograph, in the hope that health and time may permit me to complete it.

Meanwhile, I find it necessary to draw attention to a few points in classification, and to endeavour to clear up some confusion which seems to have arisen on various points. There are persons who despise classification, calling systematizers mere mechanical catalogue-makers; and certainly there seems to be some little justification for this, in cases where authors have multiplied species recklessly, founding them on single or imperfect specimens or insufficient characters. Sometimes, of course, one specimen may be found as to which there can be no shadow of a doubt, and which may properly be separated from all others. But the man who *habitually* erects new species, and even new genera, to suit trivial features of a single specimen collected by him or sent to him, ought to be scouted and "sent

to Coventry" by all true lovers of science. Properly undertaken and thought out, a systematic catalogue is essential to real knowledge. Coccids suffer a good deal from the want of one.

A further reason for desiring such a thing is that the older (and I am sorry to say some of the modern) students of Coccids have been unable to travel out of the grooves of what I may call "ordinary" entomology; I mean the determination of species from external appearance and characters. Colour, size, general form, apparent structure of the secreted coverings, have been considered as of primary importance. On the other hand (rightly as it seems to me), I have always insisted that true Coccid classification should depend upon the anatomical characters of the insects themselves, and that mere external features, visible to the naked eye or an ordinary lens, are but secondary. A lepidopterist may get on capitally without using a microscope at all; a coccidist would fall into innumerable errors without one.

Dactylopius nipæ, Mask. and the tubercles of *Dactylopidæ*.

In Vol. xxv. of the 'Transactions of the New Zealand Institute, 1892,' I described under the above name an insect from Demerara, on *Nipa fruticans*. Mr. R. Newstead had received, unknown to me, specimens of the same species, and has published a description of it in the 'Entomologists' Monthly Magazine,' August, 1893, at which time he was not aware of my paper in the 'Transactions.' There are a few discrepancies between these two accounts of the insect, on which I have sent some remarks to Mr. Newstead; they are not important, with the exception of one which I proceed now to notice, as it affects the question of classification generally.

Following partly Dr. Signoret, I have ever since 1878 made the principal characters separating the *Dactylopidæ* from the *Acanthococcidæ* to consist of the antennæ, the anal ring, and the processes at the abdominal extremity to which I have given the name of "anal tubercles." In my 'Scale Insects of New Zealand, 1887,' I gave figures illustrating the anal rings, and in my paper of 1891 drew attention to the differences in the antennæ. There is thus no necessity to refer now to these points; but with regard to the tubercles the remarks of Mr. Newstead as to *D. nipæ* lead me to treat these organs in some detail.

After stating that in *D. nipæ* the tubercles are "very large," he says:—"In the form of the antennal joints it is clearly Dactylopid, but the very conspicuous anal lobes are abnormal." I am unable to accede to this proposition; neither can I agree to refer the species to *Rhizococcus* or to any genus of the *Acanthococcidæ*.

The subdivision *Dactylopidæ* consists of such genera as *Dactylopius*, *Ripersia*, *Orthezia*, &c. The *Acanthococcidæ* include *Eriococcus*, *Gossyparia*, &c. Now, in absolute strictness, I

suppose that we ought not to look upon the tubercles of, say, *Eriococcus* and *Dactylopius* as morphologically distinct at all. In both cases they seem to be only processes visible at each side of the abdominal extremity, and they always bear a more or less numerous arrangement of hairs and spines. Carrying this view a little further, we might say that they correspond sufficiently with the abdominal lobes of the Lecanids. But, when we come to attempt a clear and convenient classification, we find that the forms (*Acanthococcidæ*) possessing antennæ with short terminal joints and anal rings with eight hairs, exhibit almost always tubercles differing considerably from those of the forms (*Dactylopidæ*) with long terminal joints and anal rings with six hairs. Some of the *Acanthococcidæ*, e.g., *Rhizococcus casuarinæ*, Mask., or *Eriococcus turgipes*, Mask., have comparatively small tubercles; some *Dactylopidæ*, e.g., *Dactylopius nipæ*, Mask., or *Ripersia fagi*, Mask., have comparatively large ones. Yet there is a very long way between them, and there is no mistaking their character.

The form of the tubercles in a Dactylopid is usually rounder and less cylindrical than in an Acanthococcid; the spines and setæ, where they occur, are more scattered; and the margins are much less irregular. As a rule also they appear to be less chitinous. After treatment with potash, it will usually be found that the feet, antennæ and rostrum of a specimen remain of a much darker colour, with more solid appearance, than the rest of the body; so also do the abdominal lobes of a Lecanid, or the anal tubercles of an Acanthococcid. But the tubercles of a Dactylopid seem generally to be less hard. There are exceptions, as in *Ripersia fagi*, where the tubercles remain slightly darker, but these are few. Even in *Eriococcus turgipes* the tubercles, though small, are conspicuously dark and hard.

Some *Dactylopidæ* have the tubercles reduced nearly to a mere dot; in others they seem altogether obsolete: examples may be seen in *Dactylopius adonidum*, *D. calceolariæ*, *Ripersia tomlinii*, *Pseudococcus asteliæ*, &c. And I do not doubt that somebody will arise, some day, fastidious enough to separate under new subgenera the species with very minute from those with more noticeable tubercles. The time for this hair-splitting does not seem to me to have yet arrived.

The tubercles of *D. nipæ* are fairly large for the genus, and they approach those of some *Ripersiæ;* and it was partly on this account (in addition to the cottony processes) that in 1892 I stated that it might almost be a *Ripersia* if other characters did not forbid it. I cannot detect any Acanthococcid feature in it. In the next volume of our 'Transactions' I propose to give some figures illustrating the differences in the anal tubercles which have just been mentioned.

Wellington, New Zealand, Oct. 12, 1893.

(To be continued.)